

CLAIMS

1. A method for communicating from a first virtual machine, defined by a virtual machine operating system, to an external device, said virtual machine operating system also defining other virtual machines and a base portion common to all of said virtual machines, said virtual machine operating system being coupled to said external device via a network, said method comprising the steps of:

said first virtual machine writing an IP datagram to an output buffer allocated to said first virtual machine, said IP datagram comprising data and a destination IP address associated with said external device; and

program functions in said base portion reading said IP datagram from said output buffer to determine said destination IP address, then copying said IP datagram from said output buffer into storage allocated to said common base portion whereby said IP datagram passes from said first virtual machine into said common base portion storage without passing through any other virtual machines, and requesting a tangible adapter card for said network to send said IP datagram to the IP destination address.

2. A method as set forth in claim 1 further comprising the step of copying the IP datagram from said storage to an output buffer for said tangible adapter card, after the copying step and before the requesting step.

3. A method as set forth in claim 1 wherein said network is a LAN.

4. A method as set forth in claim 1 wherein said common base portion includes a list of destination IP addresses associated with each of said virtual machines, and said program functions in said common base portion determine that said destination IP address in said IP

datagram is not associated with any of said virtual machines by checking said list.

5. A method as set forth in claim 1 wherein said first virtual machine executes an application and an operating system, said operating system converting a write request from said application in one form into said IP datagram with a different form than said write request.

6. A method as set forth in claim 1 wherein said program functions determine whether said IP destination address resides in said virtual machine operating system or external to said virtual machine operating system.

7. A method as set forth in claim 1 wherein one of said other virtual machines initializes said adapter card for said program functions.

8. A method as set forth in claim 1 further comprising the steps of:

said first virtual machine writing a second IP datagram to an output buffer allocated to said first virtual machine, said IP datagram comprising data and a destination IP address of another of said virtual machines; and

program functions in said base portion reading said second IP datagram from said output buffer to determine said destination IP address, then copying said IP datagram from said output buffer into storage allocated to said common base portion whereby said IP datagram passes from said first virtual machine into said common base portion storage without passing through any other virtual machines, and then copying said IP datagram into an input buffer allocated to said other virtual machine.

9. A virtual machine operating system for IP communication to an external device coupled to said virtual machine operating system via a network, said virtual machine operating system comprising:

a plurality of virtual machines and a base portion common to all of said virtual machines;

one of said virtual machines including a program function for writing an IP datagram to an output buffer allocated to said one virtual machine, said IP datagram comprising data and a destination IP address associated with said external device; and

other program functions in said base portion (a) reading said IP datagram from said output buffer to determine said destination IP address, (b) then copying said IP datagram from said output buffer into storage allocated to said common base portion whereby said IP datagram passes from said one virtual machine into said common base portion storage without passing through any other of said virtual machines, and (c) requesting a tangible adapter card for said network to send said IP datagram to the IP destination address.

10. A computer program product for communicating from a first virtual machine, defined by a virtual machine operating system, to an external device, said virtual machine operating system also defining other virtual machines and a base portion common to all of said virtual machines, said virtual machine operating system being coupled to said external device via a network, said computer program product comprising:

a computer readable medium;

first program instructions within said first virtual machine to write an IP datagram to an output buffer allocated to said first virtual machine, said IP datagram comprising data and a

destination IP address associated with said external device; and

second program instructions within said base portion to (a) read said IP datagram from said output buffer to determine said destination IP address, (b) then copy said IP datagram from said output buffer into storage allocated to said common base portion whereby said IP datagram passes from said first virtual machine into said common base portion storage without passing through any other virtual machines, and (c) request a tangible adapter card for said network to send said IP datagram to the IP destination address; and wherein

said first and second program instructions are recorded on said medium.

11. A method for communicating from a device on a network to a first virtual machine defined by a virtual machine operating system, said virtual machine operating system also defining other virtual machines and a base portion common to all of said virtual machines, said base portion coupled to said network via a tangible adapter card, said method comprising the steps of:

a program function within said base portion copying an IP datagram received from said device via said network and said tangible adapter card into an input buffer of said base portion, said IP datagram comprising data and a destination IP address of one of said virtual machines;

another program function within said base portion reading said IP datagram from said input buffer to determine said destination IP address, and if said destination IP address is for said first virtual machine, copying said IP datagram from said input buffer of said base portion to an input buffer allocated to said first virtual machine, whereby said IP datagram passes from storage of said common base portion to storage of said first virtual machine without passing through any other virtual machines.

12. A method as set forth in claim 11 wherein if said destination IP address is for another of said virtual machines, copying said IP datagram from said input buffer of said base portion to an input buffer allocated to said other virtual machine, whereby said IP datagram passes from storage of said common base portion to storage of said other virtual machine without passing through any other virtual machines.

13. A method as set forth in claim 11 wherein said network is a LAN.

14. A method as set forth in claim 11 wherein said common base portion includes a list of destination IP addresses for each of said virtual machines, and said other program function within said common base portion determines which virtual machine is indicated by the destination IP address of the IP datagram by checking said list.

15. A method as set forth in claim 11 wherein one of said other virtual machines initializes said adapter card for the first said program function.